



Refer  
to Document  
3-9

**State of New Jersey**  
**DEPARTMENT OF ENVIRONMENTAL PROTECTION**  
**DIVISION OF HAZARDOUS WASTE MANAGEMENT**

John J. Trela, Ph.D., Acting Director

401 East State St.

CN 028

Trenton, N.J. 08625

609-633-1408

MEMORANDUM

8/5/87

TO: Distribution List

THROUGH: Dennis Hart, Section Chief

Bureau of Case Management

FROM: E.G. Kaup, P.E., Case Manager

SUBJECT: UOP: Biodegradation Feasibility Analysis

The attached document/information on the above named facility is for your:

☒ Review and comment *if desirable*

*otherwise* ☒ Information and/or file

☐ Action

☐ Other

Should you have any questions or if you are unable to meet the due date please contact me at 3-0701.

Due Date:

8/19/87

Activity Code:

7BR

Distribution:

FYI  
Only

[ - ] L. Welkorn, Geologist, Division of Water Resources  
[ ] K. Schuck, Technical Coordinator, BEERA  
Division of Hazardous Site Mitigation  
[ ] \_\_\_\_\_, Regulatory Officer, Office of Regulatory  
Services  
[ ] \_\_\_\_\_, Bureau of Community Relations  
[ ] \_\_\_\_\_, Division of Solid Waste  
[ ] \_\_\_\_\_, Division of Environmental Quality  
[ ] J. Feldstein, USEPA II  
[ ] A. Marinucci BEERA  
[ ] D. Hart Bn CM

c: Karen Jentis, Chief, Bureau of Case Management w/o attachments  
Superfund Coordinator, DWR w/o attachments



A RESOURCE ENGINEERING COMPANY

696 VIRGINIA ROAD, CONCORD, MA 01742, (617) 369-8910

*environmental and engineering excellence*

ERT Document No. E197-311  
ERT Reference No. 121-MCW-108

July 29, 1987

Dr. Andrew C. Marinucci  
NJDEP  
Division of Hazardous Site Mitigation  
401 East State Street  
CN028  
Trenton, NJ 08625

RE: Biodegradation Feasibility Analysis of the Wastewater Lagoons,  
UOP Site, E. Rutherford, NJ.

Dear Dr. Marinucci:

During our meeting in Trenton on July 22 a need for a summary of the analytical data for the wastewater lagoons was identified. This data summary has been prepared and is attached to this letter as Tables 1 and 2.

Table 1 lists the compounds that were detected in each lagoon (1 and 2) and in each of the two materials of interest: sludge and meadow mat. The average concentration listed for each compound is computed from the subset of samples in which the compound is detected, not from the non-detected samples. The frequency of occurrence shows the number of samples in which the compound was detected out of the total number of samples analyzed in the particular matrix. The range of detection limits is obtained from the detection limits listed with the non-detected samples in a particular matrix.

Table 2 provides a ranking in order of decreasing average concentration for the compounds listed in Table 1. When considered in conjunction with the frequency of occurrence, Table 2 helps identify the compounds that contribute significantly to contamination in the lagoons. To further emphasize the significant

Dr. Andrew C. Marinucci  
Page Two  
July 29, 1987

contamination, the following list was prepared which shows compounds that were detected in at least four of nine samples and had an average concentration of at least 10 mg/kg, (these criteria were randomly selected for illustrative purposes only).

Lagoon 1

Sludge:

Toluene  
Xylenes, Total  
Trichloroethylene  
1,2,-trans-dichloroethylene  
Benzene  
Chlorobenzene  
Ethylbenzene

Meadow Mat:

Toluene  
Xylenes, Total  
Phenol  
1,2-Trans-dichloroethylene

Lagoon 2

Sludge:

1,2-dichlorobenzene  
Xylenes, Total  
Bis(2-ethylhexyl)phthalate  
Toluene


Meadow Mat:

None

The above list and Table 2 show that the contamination does not include four and five ring polynuclear aromatic hydrocarbons which was a potential concern that arose during the telephone conference between you, Dick Woodward, ERT, and me on July 24. As you confirmed in a telephone conversation with me on July 28, the absence of these compounds is sufficient to eliminate consideration of the Ames mutagenic toxicity test, unless PCBs are found in the initial priority pollutant scan performed during the feasibility analysis.

I hope that the enclosed data will aid our future discussions and if there are any questions regarding this submittal please call me at (617) 369-8910.

Sincerely yours,

  
Michael C. Worthy  
Environmental Engineer

MCW/djs

cc: L. Geyer, UOP  
E. Kaup, NJDEP (7 copies)

ERT

TABLE 1  
SUMMARY OF PHASE II DATA, LAGOONS  
SLUDGE, LAGOON 1

<u>Class</u>	<u>Compound</u>	<u>Average (mg/kg)*</u> <u>Concentration</u>	<u>Frequency</u> <u>of Occurrence</u>	<u>Range of (µg/kg)**</u> <u>Detection Limits</u>
VOCs	Benzene	15.1	8/9	<2000
	Chlorobenzene	13.0	9/9	N/A***
	1,2-trans-Dichloroethylene	15.7	6/9	<1000 - <2000
	Ethylbenzene	12.2	9/9	N/A
	Tetrachloroethylene	13.0	5/9	<1000 - <2000
	Toluene	184.8	9/9	N/A
	Trichloroethylene	35.0	8/9	<2000
	Acetone	32.0	1/9	<2500 - <5000
	Xylenes, Total	44.7	9/9	N/A
B/NS	1,2,4-Trichloro-Benzene	14.0	1/9	<1000 - <20,000
	1,2-Dichloro-Benzene	7.9	4/9	<2000 - <20,000
	1,4-Dichloro-Benzene	5.4	3/9	<1000 - <20,000
	Napthalene	2.0	1/9	<1000 - <20,000
	Anthracene	4.4	1/9	<1000 - <20,000
Acids	Phenol	8.3	2/9	<1000 - <20,000

---

\*Average of samples where compound was detected;  
Non-detected values are not incorporated in the average.

\*\*Reported detection limit from samples where compound was not detected.

\*\*\*Not applicable.

TABLE 1 (Continued)  
MEADOW MAT, LAGOON 1

<u>Class</u>	<u>Compound</u>	<u>Average (mg/kg)* Concentration</u>	<u>Frequency of Occurrence</u>	<u>Range of (µg/kg)** Detection Limits</u>
VOCs	Benzene	6.8	8/9	<1000
	Chlorobenzene	8.0	9/9	N/A
	1,2-trans-dichloro- ethylene	12.1	6/9	<1,000
	Ethylbenzene	6.6	8/9	<2,500
	Tetrachloro- Ethylene	1.1	1/9	<200 - <1000
	Toluene	94.0	9/9	N/A
	Trichloroethylene	6.1	4/9	<200 - <1000
	Xylenes, Total	24.7	9/9	N/A
B/Ns	1,2,4-Trichloro- Benzene	2.5	1/9	<1000 - <20,000
	1,2-Dichlorobenzene	1.7	3/9	<1000 - <20,000
	1,4-Dichlorobenzene	2.0	1/9	<800 - <20,000
	Napthalene	1.0	1/9	<800 - <20,000
	Bis (2-ethylhexyl) phthalate	2.2	1/9	<800 - <20,000
	Di-n-Butyl Phthalate	1.1	1/9	<1000 - <20,000
Acids	Phenol	13.1	6/9	<800 - <2,000

TABLE 1 (Continued)

## SLUDGE, LAGOON 2

<u>Class</u>	<u>Compound</u>	<u>Average (mg/kg)* Concentration</u>	<u>Frequency of Occurrence</u>	<u>Range of (µg/kg)** Detection Limits</u>
VOCs	Benzene	2.8	8/9	<200
	Chlorobenzene	7.3	9/9	N/A
	Ethylbenzene	6.1	8/9	<500
	Tetrachloro- Ethylene	3.0	3/9	<200 - <1000
	Toluene	13.3	9/9	N/A
	Trichloroethylene	1.7	2/9	<200 - <1000
	Xylenes, Total	24.8	8/9	<200
B/Ns	1,2,4-Trichloro- Benzene	29.1	3/9	<400 - <20,000
	1,2-Dichlorobenzene	24.8	9/9	N/A
	1,4-Dichlorobenzene	22.0	3/9	<800 - <20,000
	Napthalene	2.0	1/9	<800 - <20,000
	Bis (2-ethylhexyl) phthalate	25.1	5/9	<400 - <20,000
	Di-N-Butyl Phthalate	1.0	2/9	<200 - <20,000

TABLE 1 (Continued)  
MEADOW MAT, LAGOON 2

<u>Class</u>	<u>Compound</u>	<u>Average (mg/kg)* Concentration</u>	<u>Frequency of Occurrence</u>	<u>Range of (µg/kg)** Detection Limits</u>
VOCs	Benzene	1.9	8/9	<200
	Chlorobenzene	2.5	9/9	N/A
	Ethylbenzene	0.9	9/9	N/A
	Toluene	0.5	9/9	N/A
	Xylenes, Total	1.7	9/9	N/A
B/Ns	1,2,4-Trichloro- Benzene	0.1	1/9	<200 - <3600
	1,2-Dichlorobenzene	4.6	8/9	<800
	1,3-Dichlorobenzene	1.2	5/9	<200 - <1000
	1,4-Dichlorobenzene	1.7	7/9	<800 - <1000
	Napthalene	0.6	1/9	<200 - <3600
	Bis (2-ethylhexyl) phthalate	3.3	3/9	<200 - <3600
	Di-N-Butyl Phthalate	4.2	5/9	<1000 - <2000
	Benzo(a)Pyrene	1.1	1/9	<400 - <7200



TABLE 2

COMPOUNDS LISTED IN DECREASING ORDER OF CONCENTRATION

<u>Compound</u>	<u>Average (mg/kg) Concentration</u>	<u>Frequency of Occurrence</u>
Sludge, Lagoon 1:		
Toluene	185	9/9
Xylenes, Total	45	9/9
Trichloroethylene	35	8/9
Acetone	32	1/9
1,2-Trans-dichloroethylene	16	6/9
Benzene	15	8/9
1,2,4-Trichlorobenzene	14	1/9
Chlorobenzene	13	9/9
Tetrachloroethylene	13	5/9
Ethylbenzene	12	9/9
Phenol	8	2/9
1,2-dichlorobenzene	8	4/9
1,4-dichlorobenzene	5	3/9
Anthracene	4	1/9
Napthalene	2	1/9

TABLE 2 (Continued)

<u>Compound</u>	<u>Average (mg/kg) Concentration</u>	<u>Frequency of Occurrence</u>
Meadow Mat, Lagoon 1:		
Toluene	94	9/9
Xylenes, Total	25	9/9
Phenol	13	6/9
1,2-Trans-dichloroethylene	12	6/9
Chlorobenzene	8	9/9
Benzene	7	8/9
Ethylbenzene	7	8/9
Trichloroethylene	6	4/9
1,2,4-Trichlorobenzene	3	1/9
Bis(2-ethylhexyl) phthalate	2	1/9
1,4-dichlorobenzene	2	1/9
di-n-butyl phthalate	1	1/9
Tetrachloroethylene	1	1/9
di-n-butyl phthalate	1	1/9
Napthalene	1	1/9

TABLE 2 (Continued)

<u>Compound</u>	<u>Average (mg/kg) Concentration</u>	<u>Frequency of Occurrence</u>
Sludge, Lagoon 2:		
1,2,4-Trichlorobenzene	29	3/9
1,2-Dichlorobenzene	25	9/9
Xylenes, Total	25	8/9
Bis(2-ethylhexyl) Phthalate	25	5/9
1,4-Dichlorobenzene	22	3/9
Toluene	13	9/9
Chlorobenzene	7	9/9
Ethylbenzene	6	8/9
Benzene	3	8/9
Tetrachloroethylene	3	3/9
Napthalene	2	1/9
Trichloroethylene	2	2/9
Di-n-butyl phthalate	1	2/9

TABLE 2 (Continued)

<u>Compound</u>	<u>Average (mg/kg) Concentration</u>	<u>Frequency of Occurrence</u>
Meadow Mat, Lagoon 2:		
1,2-Dichlorobenzene	5	8/9
Di-n-butyl phthalate	4	5/9
Bis(2-ethylhexyl) Phthalate	3	3/9
Chlorobenzene	3	9/9
Benzene	2	8/9
Xylenes, Total	2	9/9
1,4-dichlorobenzene	2	7/9
1,3-dichlorobenzene	1	5/9
Ethylbenzene	1	9/9
Benzo(a)pyrene	1	1/9
Toluene	1	9/9
Napthalene	1	1/9
1,2,4-Trichlorobenzene	0.1	1/9